

N-CHANNEL LOGIC LEVEL MOSFET

Qualified per MIL-PRF-19500/570

DEVICES

2N6901

LEVELS
JAN
JANTX
JANTXV

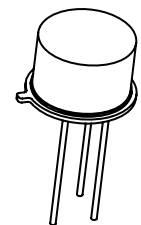
ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	Value	Unit
Drain – Source Voltage	V_{DS}	100	Vdc
Gate – Source Voltage	V_{GS}	± 10	Vdc
Continuous Drain Current $T_C = +25^\circ\text{C}$	I_{D1}	1.69	Adc
Continuous Drain Current $T_C = +100^\circ\text{C}$	I_{D2}	1.07	Adc
Max. Power Dissipation	P_{tl}	8.33 ⁽¹⁾	W
Drain to Source On State Resistance	$R_{ds(on)}$	1.4 ⁽²⁾	Ω
Operating & Storage Temperature	T_{op}, T_{stg}	-55 to +150	$^\circ\text{C}$

Note: (1) Derated Linearly by 0.067 W/ $^\circ\text{C}$ for $T_C > +25^\circ\text{C}$
 (2) $V_{GS} = 5\text{Vdc}$, $I_D = 1.07\text{A}$

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Drain-Source Breakdown Voltage $V_{GS} = 0\text{V}$, $I_D = -1\text{mA}$ dc	$V_{(BR)DSS}$	100		Vdc
Gate-Source Voltage (Threshold) $V_{DS} \geq V_{GS}$, $I_D = 1.0\text{mA}$ $V_{DS} \geq V_{GS}$, $I_D = 1.0\text{mA}$, $T_j = +125^\circ\text{C}$ $V_{DS} \geq V_{GS}$, $I_D = 1.0\text{mA}$, $T_j = -55^\circ\text{C}$	$V_{GS(th)1}$ $V_{GS(th)2}$ $V_{GS(th)3}$	1.0 0.5	2.0 3.0	Vdc
Gate Current $V_{GS} = \pm 10\text{V}$, $V_{DS} = 0\text{V}$ $V_{GS} = \pm 10\text{V}$, $V_{DS} = 0\text{V}$, $T_j = +125^\circ\text{C}$	I_{GSS1} I_{GSS2}		± 100 ± 200	nAdc
Drain Current $V_{GS} = 0\text{V}$, $V_{DS} = 80\text{V}$ $V_{GS} = 0\text{V}$, $V_{DS} = 80\text{V}$, $T_j = +125^\circ\text{C}$	I_{DSS1} I_{DSS2}		1.0 50.0	μAdc uAdc
Static Drain-Source On-State Resistance $V_{GS} = 5\text{V}$, $I_D = 1.07\text{A}$ pulsed $T_j = -125^\circ\text{C}$ $V_{GS} = 5\text{V}$, $I_D = 1.07\text{A}$ pulsed	$r_{DS(on)1}$ $r_{DS(on)2}$		1.4 2.6	Ω Ω
Diode Forward Voltage $V_{GS} = 0\text{V}$, $I_D = 1.69\text{A}$ pulsed	V_{SD}	0.8	1.6	Vdc



2N6901
TO-205AF
 (formerly TO-39)

SEE FIGURE 1

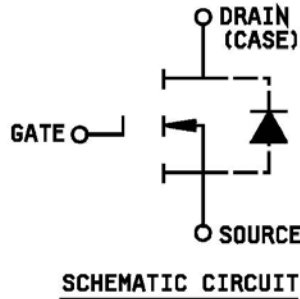
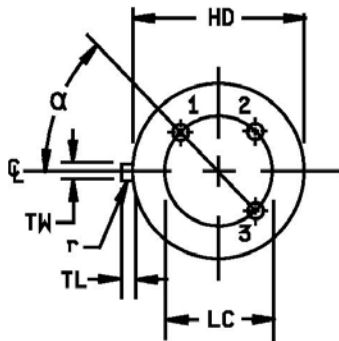
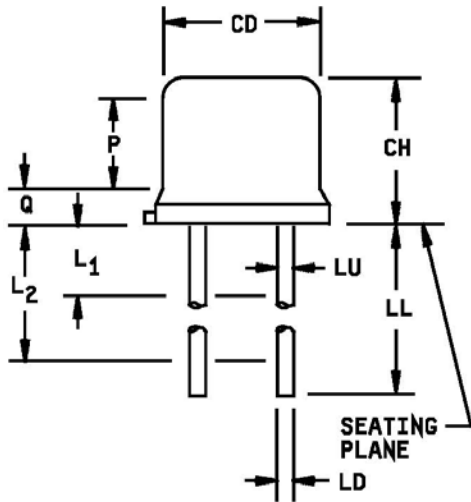
DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate Charge: On-State Gate Charge Gate to Source Charge Gate to Drain Charge	$Q_{g(on)}$ Q_{gs} Q_{gd}		5.0 1.0 2.9	nC
		$V_{GS} = 5V, I_D = 1.69A$		
		$V_{DS} = 50V$		

SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Switching time tests: Turn-on delay time Rinse time Turn-off delay time Fall time	$t_{d(on)}$ t_r $t_{d(off)}$ t_f		25 80 45 80	ns
		$I_D = 1.69A, V_{GS} = 5Vdc,$ Gate drive impedance = 25 $\Omega,$ $V_{DD} = 50Vdc$		
Diode Reverse Recovery Time	t_{rr}		250	ns
		$di/dt \leq 100A/\mu s, V_{DD} \leq$ 30V, $I_F = 1.0A$		

PACKAGE DIMENSIONS



Symbol	Dimensions				
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.305	.335	7.75	8.51	
CH	.160	.180	4.07	4.57	
HD	.335	.370	8.51	9.40	
LC	.200 TP		5.08 TP		
LD	.016	.021	0.41	0.53	8,9
LL	.500	.750	12.70	19.05	8,9
LU	.016	.019	0.41	0.48	8,9
L1		.050		1.27	8,9
L2	.250		6.35		8,9
P	.100		2.54		6
Q		.050		1.27	5
TL	.029	.045	0.74	1.14	4
TW	.028	.034	0.71	0.86	3
r		.010		0.25	10
α	45° TP		45° TP		6

NOTE:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Beyond radius(r) maximum, TW shall be held for a minimum length of .011 (0.28 mm).
4. Dimension TL measured from maximum HD.
5. Outline in this zone is not controlled.
6. Dimension CD shall not vary more than .010 (0.25 mm) in zone P. This zone is controlled for automatic handling.
7. Leads at gauge plane .054 +.001, -.000 (1.37 +0.03, -0.00 mm) below seating plane shall be within .007 (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC.
8. LU applies between L1 and L2. LD applies between L2 and LL minimum. Diameter is uncontrolled in L1 and beyond LL minimum.
9. All three leads.
10. Radius(r) applies to both inside corners of tab.
11. Drain is electrically connected to the case.
12. Pin out: 1 - source, 2 - gate, 3 - drain (case).
13. In accordance with ASME Y14.5M, diameters are equivalent to φx symbology.

FIGURE 1. Physical dimensions for TO-205 AF